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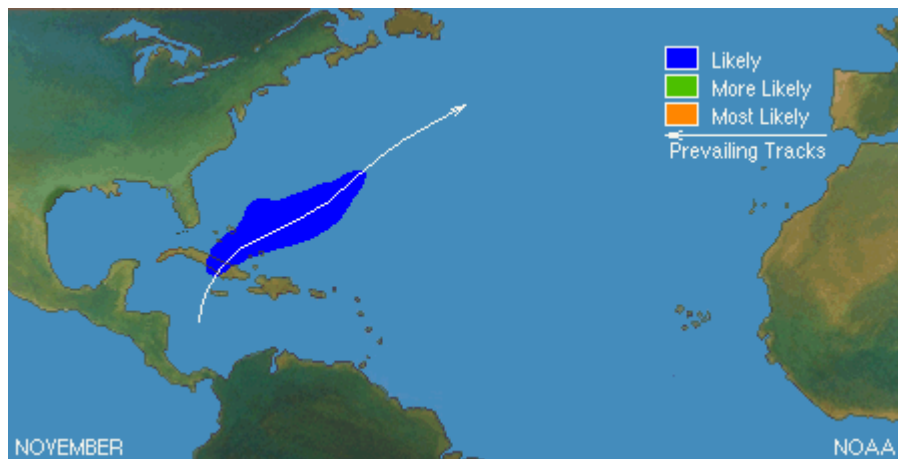
Miami, Florida 33165

Tropical Storm/Hurricane Climatology

Mainland South Florida - November

After a busy August, September and even October, the tropical cyclone season really quiets down by November. On average across the Atlantic basin, a tropical storm develops about once every other November, while a hurricane forms about once every four years.

November systems typically develop in the Caribbean Sea, as well as the western and central Atlantic Ocean, and tend to move towards the north and northeast as troughs and frontal systems dig into the Atlantic basin from the north.

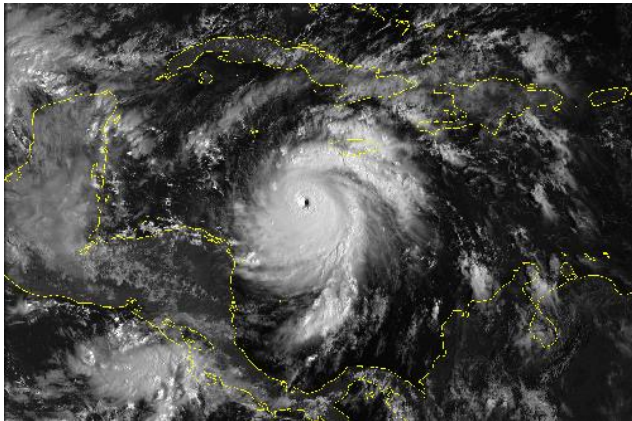


While November tropical cyclones are uncommon in south Florida, they have occurred as recently as 1994 and 1998. Since 1851, a total of 5 tropical cyclones have affected mainland South Florida in November, including 4 tropical storms and 1 hurricane. Three of these 5 systems took rather unusual tracks for November tropical cyclones.

Below are brief summaries of three of these November systems.

Mitch – November 4-5, 1998

The last November tropical system to affect south Florida was Mitch in 1998. Mitch became a Category 5 hurricane over the western Caribbean on October 26th, before slowly moving onshore the Honduras coast and eventually weakening to a depression on October 31st.



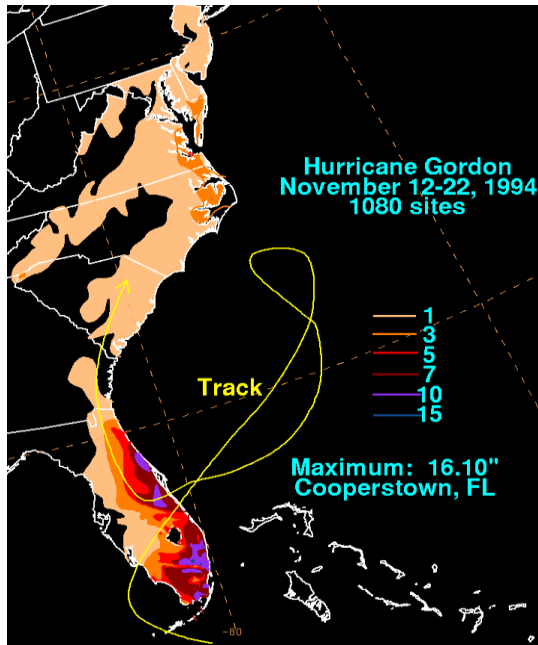
Central America, especially Honduras and Nicaragua, was ravaged by this powerful hurricane with over 9,000 people estimated to have died, mainly as a result of severe flooding. By November 3rd, the remnants of Mitch moved into the Bay of Campeche, where Mitch redeveloped into a tropical storm. Mitch crossed the Yucatan peninsula of Mexico then accelerated northeastward making landfall near Naples on the morning of November 5th as a tropical storm, then becoming extratropical while exiting the Palm Beach coast by the afternoon of the 5th.

The primary impact from Mitch across south Florida was tornadoes. Mitch spawned 5 tornadoes, one in Collier County, one in Broward County, one in Palm Beach County, and two in the Florida Keys. These tornadoes resulted in 65 injuries and 645 homes being damaged or destroyed, mainly in the Keys.

[See this case study for more information](#) on the formation and impacts of tornadoes spawned by Mitch in the Florida Keys.

Gordon – November 15-16, 1994

Gordon developed over the western Caribbean Sea on November 8th, briefly making landfall over Nicaragua. Gordon followed a very erratic path during its lifetime. After re-emerging off the Nicaraguan coast, Gordon moved northeast over Jamaica and far eastern Cuba as a tropical storm. Gordon then turned west northwestward, crossing the Florida Keys on November 15th and then turned back to the northeast, making a second Florida landfall near Ft. Myers on the 16th with maximum sustained winds of 50 mph. Gordon crossed the Florida peninsula, exiting the Atlantic coast near Vero Beach as it continued moving northeast. Gordon briefly became a hurricane several hundred miles southeast of the Carolinas. Gordon then weakened to a tropical storm and changed course, moving back towards the Florida coast and making a third landfall near Cape Canaveral on the 20th. Gordon moved north northeast up the Florida east coast eventually dissipating over the Carolinas.



(Map courtesy of NOAA/NWS/HPC)

Gordon's most significant impacts across south Florida were flooding from heavy rainfall, very rough surf, tornadoes and sustained tropical storm force winds over an extended period of time. Widespread rainfall amounts of 6 to 9 inches were observed across southeast and east central Florida, with some 12 to 16 inch amounts across portions of southeast Florida. The maximum rainfall total associated with Gordon was 16.10 inches in Coopertown in the Everglades of central Miami-Dade County, with 16 inches observed near the intersection of US 27 and I-75 in Broward County. Severe flooding resulted in devastating damage to the south Florida agricultural community. Gordon also spawned 6 tornadoes across southeast and east-central Florida. A total of 8 deaths in Florida were attributed to Gordon, mainly from drowning from severe flooding and rip currents/heavy surf.

For more detailed information on Tropical Storm Gordon, [please see this presentation](#) which was given at the 2008 Florida Governor's Hurricane Conference in Fort Lauderdale.

WIND-BAROMETER INDICATIONS.
 Press. in from points between south and southeast and the willy a storm approaching from the west or northwest, and a near or north of the observer within 12 to 24 hours with wind set by way of southwest and west. When the wind sets in an east and northeast and the barometer falls steadily a storm in the south or southwest, and its center will pass near or to the observer within 12 or 24 hours with wind shifting to north or north-northwest. The rapidity of the storm's approach and its intensity

REPORTS FROM ATLANTIC, PACIFIC, AND ALASKAN STATIONS

Station	Time	Wind	Weather
St. Louis	10:00	10	clear
St. Paul	10:00	10	clear
St. Peter	10:00	10	clear
St. Cloud	10:00	10	clear
St. James	10:00	10	clear
St. Joseph	10:00	10	clear
St. Mary	10:00	10	clear
St. Ignace	10:00	10	clear
St. Anthony	10:00	10	clear
St. Charles	10:00	10	clear
St. John	10:00	10	clear
St. Peter	10:00	10	clear
St. Paul	10:00	10	clear
St. James	10:00	10	clear
St. Joseph	10:00	10	clear
St. Mary	10:00	10	clear
St. Ignace	10:00	10	clear
St. Anthony	10:00	10	clear
St. Charles	10:00	10	clear
St. John	10:00	10	clear
St. Peter	10:00	10	clear
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St. Joseph	10:00	10	clear
St. Mary	10:00	10	clear
St. Ignace			

This hurricane became known as the “Yankee Hurricane” due to its unusual path towards Florida from the north, and has the distinction as the only November hurricane to have affected mainland south Florida.

For more detailed information on this hurricane, please see this presentation which was also given at the 2008 Florida Governor's Hurricane Conference.